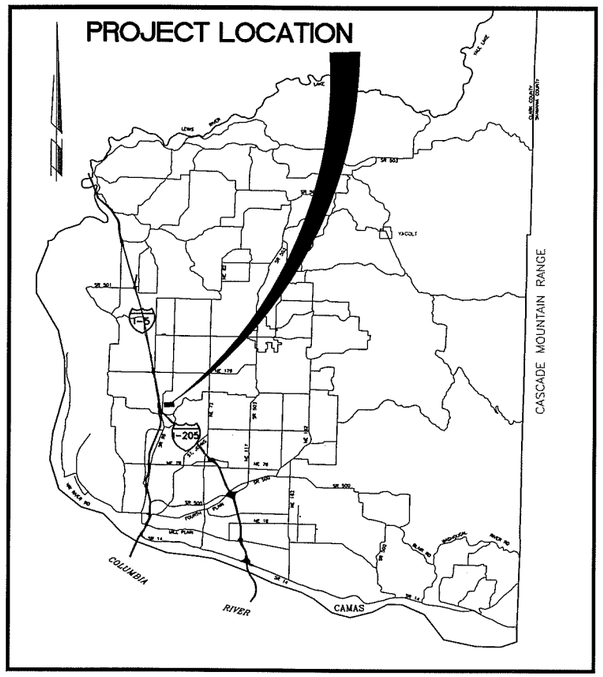
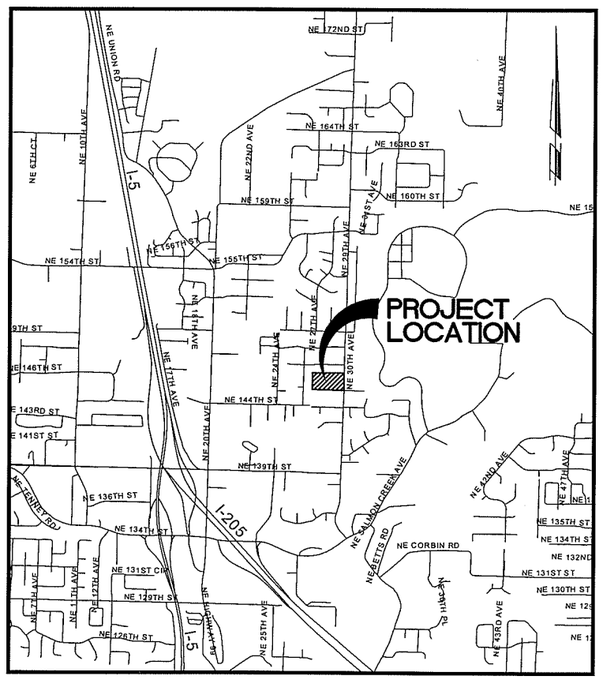
COUNTY PROJECT #24320

VISTA MEADOWS PARK

NE 29TH AVENUE – ROAD FRONTAGE IMPROVEMENTS

PLANS FOR THE CONSTRUCTION OF
ROADWAYS AND STORM DRAINAGE





INDEX OF SHEETS

COMMISSIONERS:

BETTY SUE MORRIS, Chair
MARC BOLDT, Commissioner
STEVEN J. STUART, Commissioner

CLARK COUNTY WASHINGTON
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DEPARTMENT OF
PUBLIC WORKS

ENGINEERING PROGRAM - DESIGN SECTION

THOMAS D. GRANGE
STATE OF WASHINGTON
32068
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: JANUARY 20, 2006

PRELIMINARY 90%

Quality Assurance	*Project Manager*	*Public Works Director/ County Engineer*
Heath Henderson, P.E. DATE:	*Don Andrews* DATE:	*Peter Capell, P.E.* DATE:

ENG 2005–

CLARK COUNTY WASHINGTON
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Recommended for Approval

Grading _____ Erosion _____

Storm Water Plan _____

Development Review Manager — Date

SUMMARY OF QUANTITIES

LEGEND

- ROW LINE
- NEW EDGE OF PAVEMENT
- NEW CURB LINE
- NEW CENTER LINE
- NEW FENCE LINE
- NEW STORM DRAIN OR CULVERT
- NEW FILL LIMITS
- NEW CUT LIMITS
- SAWCUT LINE
- PERMANENT SLOPE EASEMENT
- NEW SILT FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB LINE
- EXISTING CENTER LINE
- EXISTING FENCE LINE
- EXISTING TELEPHONE LINE
- EXISTING WATER LINE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING SANITARY SEWER LINE
- EXISTING STORM DRAINAGE
- EXISTING GAS LINE
- EXISTING CULVERT
- EXISTING DITCH CENTER LINE
- EXISTING GUARDRAIL

SYMBOLS

- NEW CATCH BASIN (CB)
- NEW MANHOLE (MH)
- NEW CURB INLET (CI)
- NEW COMBINATION CURB INLET (CCI)
- NEW MAIL BOX
- NEW HANDICAP RAMP
- CURVE TABLE
- EXISTING TRANSFORMER
- EXISTING ELEC TOWER
- EXISTING SANITARY SEWER MH
- EXISTING FIRE HYDRANT
- EXISTING CLEAN OUT
- EXISTING GAS VALVE
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING SIGNAL POLE
- EXISTING TELEPHONE VAULT
- EXISTING TELEVISION BOX
- EXISTING WELL
- EXISTING BRUSH LINE
- EXISTING HEDGE
- EXISTING CURB INLET (CI)
- EXISTING CATCH BASIN (CB)
- EXISTING STORM MH
- EXISTING MISC MH
- EXISTING SHRUB
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING SIGN
- EXISTING DECIDUOUS TREE
- EXISTING J BOX
- EXISTING TELEPHONE MANHOLE
- EXISTING TELEPHONE POLE
- EXISTING LIGHT
- EXISTING GUY ANCHOR
- EXISTING POWER POLE
- EXISTING MAIL BOX
- EXISTING TELEPHONE PEDESTAL
- EXISTING SPRINKLER HEAD
- TRAVERSE POINT
- TEST HOLE
- WOODEN BOLLARD
- STEEL (REMOVABLE) BOLLARD
- BOLLARD & CABLE FENCE

DESIGNED	KB
DRAWN	TG
CRP	24320
HOR.	NA
VERT.	NA
DATE	07/29/05
DWG:	SQ1
SHEET 2	OF 10

CALL 48 HOURS BEFORE YOU DIG
1-800-553-4344
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NORTHWEST UTILITIES NOTIFICATION CENTER

THOMAS D. GRANGE
STATE OF WASHINGTON
32068
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JANUARY 20, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 29TH AVENUE
SUMMARY OF QUANTITIES AND LEGEND

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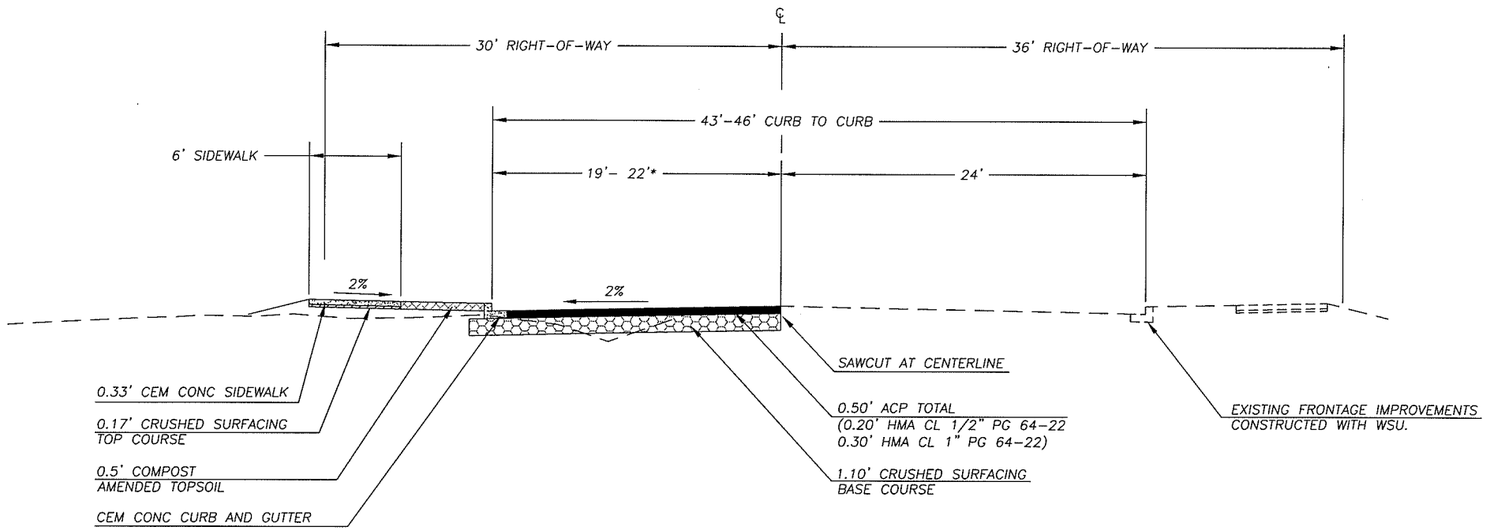
CLARK COUNTY
WASHINGTON



NE 29TH AVENUE

STA 9+99 TO 13+28

*OFFSET TO FACE OF CURB VARIES FROM 19' AT STA 10+00
TO 22' AT STA 13+28 WITH A STRAIGHT TAPER IN BETWEEN.

DESIGNED	TG
DRAWN	RK
CRP	24320
HOR.	NA
VERT.	NA
DATE	07/29/05
DWG:	TS1
SHEET 3	OF 10

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STATE OF WASHINGTON
TIMOTHY D. GRANGE
21584
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JANUARY 20, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 29TH AVENUE
TYPICAL SECTIONS

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WASHINGTON

N:\CIP\PROJECTS\24320-VistaMeadowsPark\DESIGN\DWGS\VMPTS1.dwg, 7/29/2005 8:17:49 AM, granget

LEGEND

— SF— SF— SILT FENCE

(IP) INLET PROTECTION

SAWCUT AND REMOVE EXT RDWY STRUCTURE TO LIMITS SHOWN. REPLACE PER TYPICAL SECTIONS AND PLAN LAYOUT.

SCALE IN FEET

20 0 20 40

VISTA MEADOWS
H, PG. 569)

13 14 15 16

NE 29TH AVE

+00.00 10+00.00 11+00.00 12+00.00 13+00.00 14+00.00

DESIGNED	TG
DRAWN	KB
CRP	24320
HOR.	1"=20'
VERT.	NA
DATE	07/29/05
DWG:	EC1
SHEET 4	OF 10

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TODD D. GRANGE STATE OF WASHINGTON 37068 REGISTERED PROFESSIONAL ENGINEER EXPIRES: JANUARY 29, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 29TH AVENUE
EROSION CONTROL PLAN

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CLARK COUNTY
WASHINGTON

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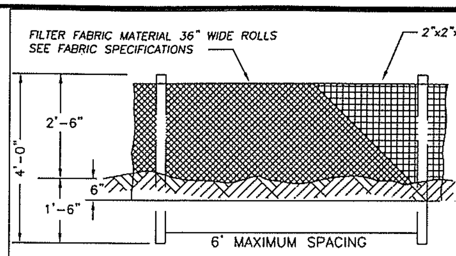
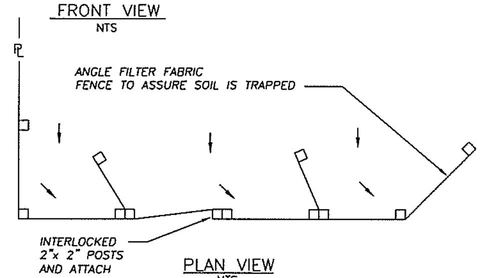


FRONT VIEW
NTS

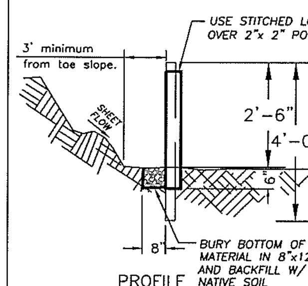
SEDIMENT FENCE FABRIC SPECIFICATIONS
(Woven Polyproylene sediment fence fabric)

PROPERTY	TEST PROCEDURE	MIN. FABRIC VALUE
Grab Tensile Strength	ASTM D-4632	180 lbs.
Grab elongation	ASTM D-4632	15%
trapezoid Tear	ASTM D-4533	70 lbs.
Mullen Burst	ASTM D-3786	300 psi.
Puncture	ASTM D-4833	80 lbs.
Permitivity	ASTM D-4491	0.07 sec-1
Permeability	ASTM D-4491	.005 cm/sec
A.O.S.	ASTM D-4751	50 U.S. Sieve
UV Resistance(500 hrs)	ASTM D-4355	90%



PLAN VIEW
NTS

NOTES
1. THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS, IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED. (SEE FABRIC SPECIFICATIONS ABOVE)
2. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
3. POST ARE TO BE 2"x2" FIR, PINE OR STEEL FENCE POSTS.
4. POST TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
5. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
6. SEDIMENT FENCE TO BE SPACED ON SLOPES PER TABLE BELOW.



PROFILE
NTS

INSTALL PARALLEL ALONG CONTOURS AS FOLLOWS		
% SLOPE	SLOPE	MAX. SPACING ON SLOPE
10% FLATTER	10:1 OR FLATTER	300 ft.
10>%<15	10:1>x<7.5:1	150 ft.
15>%<20	7.5:1>x<5:1	100 ft.
20>%<30	5:1>x<3.5:1	50 ft.
30>%<50	3.5:1>x<2:1	25 ft.

NO.	REVISIONS	DATE	BY

DWG: E-4.DWG

Department of Public Works
CLARK COUNTY
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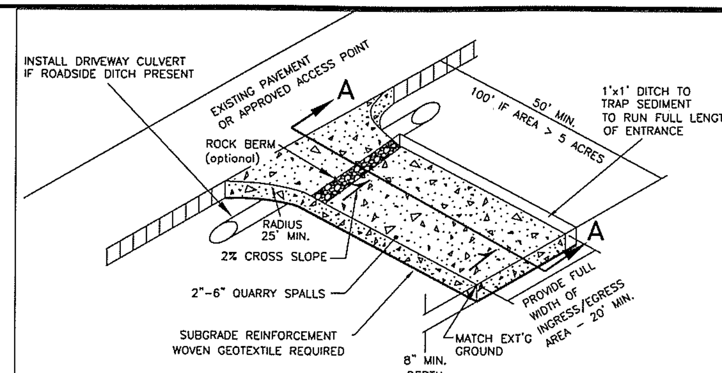
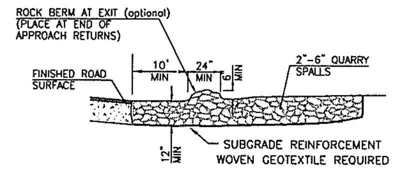
STANDARD SEDIMENT FENCE

APPROVED
COUNTY ENGINEER
01/01/04
DATE

STANDARD
E-4
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03





1. EXCAVATE MINIMUM OF 12" OF EXISTING SOILS.
2. PLACE MINIMUM OF 12" OF 2"-6" QUARRY SPALLS
3. CONSTRUCT ROCK BERM ALONG TRANSITION POINT TO FINISH ROAD SURFACES. DIVERT RUNOFF TO ONSITE AREA (OPTIONAL).

SECTION A-A

NOTES:
1. FOR DEVELOPMENT PROJECTS REVIEWED BY ENGINEERING SERVICES. NOT FOR USE WITH SINGLE FAMILY OR DUPLEX RESIDENTIAL BUILDING PERMITS. SEE BUILDING DEPT. FOR GRAVEL CONSTRUCTION ENTRANCE PLAN.
2. INSTALL WOVEN GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.
3. VEHICLE WASHDOWN AREA, IF REQUIRED, IS TO BE INSTALLED AND USED TO REMOVE SEDIMENT FROM VEHICLES THAT ARE ABOUT TO ENTER AN ESTABLISHED ROAD.
4. WASHDOWN AREA TO BE MADE UP OF CLEAN 2"- 6" QUARRY SPALLS, 1" DEEP (MIN) OVER WOVEN GEOTEXTILE FABRIC. WASHDOWN AREA TO BE FULL WIDTH OF ENTRANCE AND 50' (MIN.), AND 100' IF EXPOSED SOIL IS OVER 5 ACRES.
5. AT TIME OF PRECONSTRUCTION MEETING, THE COUNTY INSPECTOR MAY REQUIRE THE ENTRANCE TO BE PAVED TO THE EDGE OF THE RIGHT-OF-WAY PRIOR TO THE INSTALLATION OF A WASHDOWN ENTRANCE TO AVOID DAMAGE TO THE EXISTING ROADWAY.
6. THE RESPONSIBLE EROSION CONTROL INDIVIDUAL IS TO ENSURE THAT ALL VEHICLES USE THIS ENTRANCE AND ARE TO BE INSPECTED AND CLEANED OF SOILS BEFORE LEAVING PROJECT, AND THAT THE ENTRANCE IS TO BE KEPT CLEAN AT ALL TIMES.

NO.	REVISIONS	DATE	BY

DWG: E-1.DWG

Department of Public Works
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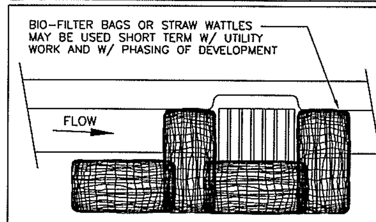
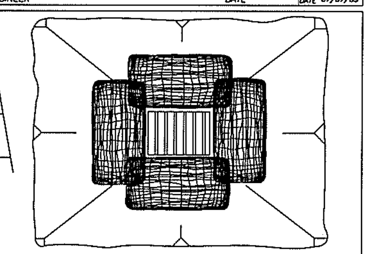
STANDARD CONSTRUCTION ENTRANCE

APPROVED
COUNTY ENGINEER
01/01/04
DATE

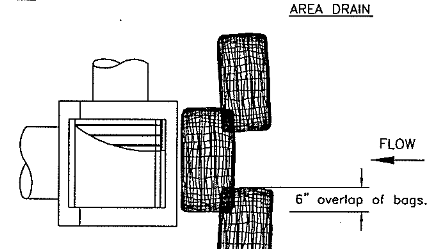
STANDARD
E-1
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 07/07/03



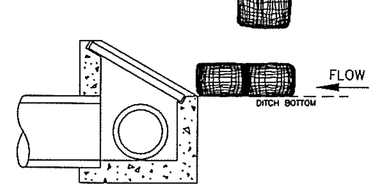
CATCH BASIN



AREA DRAIN



PLAN VIEW



DITCH INLET

NOTES:
1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPE.
2. BIO-FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2" WOODEN STAKES OR APPROVED EQUAL PER BAG.
3. STRAW WATTLES MUST BE STABILIZED BY ATTACHING WIRE CLIPS TO THE CATCH BASIN PER MANUFACTURES SPECIFICATIONS.
4. INLET PROTECTION MUST BE REGULARLY INSPECTED BY THE EROSION CONTROL INDIVIDUAL TO INSURE PROPER PLACEMENT/FUNCTION AND MAINTENANCE.
5. SEE INLET PROTECTION NOTES STD. PLAN E-3

NO.	REVISIONS	DATE	BY

DWG: E-3c.DWG

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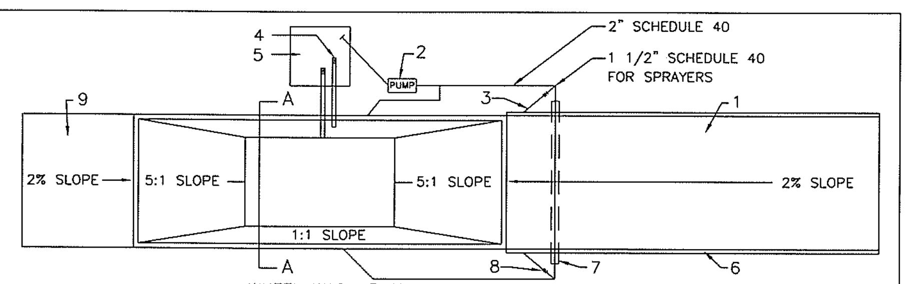
INLET PROTECTION TYPE 4
BIOFILTER BAGS

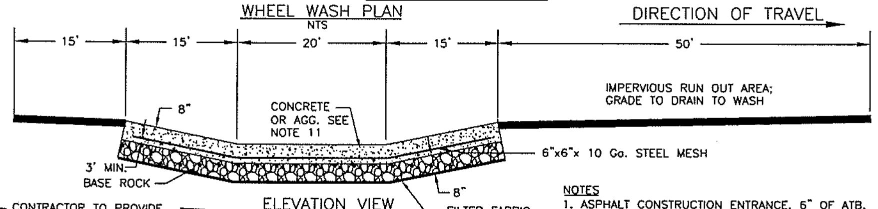
APPROVED
COUNTY ENGINEER
01/01/04
DATE

STANDARD
E-3c
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 08/07/02

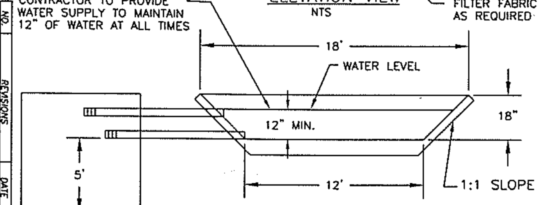


WHEEL WASH PLAN
NTS

DIRECTION OF TRAVEL



ELEVATION VIEW
NTS



SECTION A-A
NTS

NOTES
1. ASPHALT CONSTRUCTION ENTRANCE, 6" OF ATB.
2. 3" TRASH PUMP WITH FLOATS ON SUCTION HOSE.
3. MIDPOINT SPRAY NOZZLES, IF NEEDED.
4. 6" SEWER PIPE WITH BUTTERFLY VALVES. BOTTOM PIPE IS A DRAIN. LOCATE TOP PIPE'S INVERT 1' ABOVE BOTTOM OF WHEEL WASH.
5. 8'x 8' SUMP WITH 5' OF CATCHMENT. BUILD WITH ABILITY TO CLEAN WITH BACKHOE.
6. ASPHALT CURB ON THE LOW ROAD SIDE TO DIRECT WATER BACK TO POND.
7. 6" SLEEVE UNDER ROAD.
8. BALL VALVES.
9. ATB APRON TO PROTECT FROM SPLASHING WATER.
10. CONTRACTOR TO REMOVE ACCUMULATED SEDIMENT FROM WHEEL WASH; MAY BE PIPED TO AN APPROVED SEDIMENT TRAP.
11. USE GEOTEXTILE FABRIC WITH AGGREGATE FOR A TEMPORARY WHEEL WASH.

DWG: E-15

Department of Public Works
CLARK COUNTY
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WHEEL WASH

APPROVED
COUNTY ENGINEER
01/01/04
DATE

NO.	REVISIONS	DATE	BY

STANDARD
E-15
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 08/12/02

STANDARD NOTES FOR EROSION CONTROL PLAN

1. The Contractor shall install and maintain BMP's as shown and perform all actions necessary to prevent erosion, and control sediment from leaving the construction site. Site Contractor shall comply with Clark County Code Chapter 13 .29, Article IV.

2. All erosion control measures shall be in-place and in working condition prior to disturbing and exposing any soil surfaces (i.e. silt fence, construction entrance, sedimentation barriers, sedimentation traps).

3. All erosion prevention and control BMP's shall be maintained and repaired as needed to insure continued performance of their intended function. Needed repairs shall be made as soon as practicable. They are to remain in place and operational during all phases of construction. Construction activities shall not continue or resume until repairs to erosion control facilities are made and the facilities are functional. Any sediment leaving the site or discharging to a sensitive area shall be stopped and controlled immediately. Contaminated areas shall be cleaned and restored.

4. Clearing limits and work area limits shall be delineated and marked. Do not disturb more area than needed for construction requirements.

5. All sensitive or critical areas (wetlands, steep slopes, natural waterways), and buffers shall all be clearly delineated and clearly marked, and protected from sediment deposition.

6. Sediment laden runoff shall be prevented from entering all existing storm water catch basins and inlets affected by construction.

7. No exposed, bare soils shall remain unstabilized for more than two days during the period October 1 thru April 30 or for more than seven days during the period of May 1 through September 30. All disturbed soil surfaces shall be stabilized by a suitable application of "Best Management Practices".

8. Where feasible, no more than 500 feet of trench shall be open at one time. Excavated material shall be placed on the up-hill side of trenches provided it does not conflict with safety requirements.

9. Dewatering devices shall discharge into a sediment trap or sediment pond. No discharge shall be made to a paved street or stormwater collection system without first removing sediment.

10. Cut and fill slopes shall be constructed in a manner that will minimize erosion. Erosion shall be controlled and prevented by such measures as roughening the surface, installation of interceptor ditches, terracing, covering with matting, mulch or plastic sheeting. Runoff shall be prevented from entering a slope and from undercutting the base of slopes.

11. Any soil or debris transported onto roadways and sidewalks shall be removed. Deposits shall be completely removed by shoveling and/or sweeping. Washing shall not be utilized unless specifically approved in writing by the County.

12. All permanent infiltration systems shall be isolated and protected from sediment laden runoff entering to avoid risk of reducing the ability of the systems to infiltrate. Isolation and protection shall not be removed until the drainage area tributary to the system is completely stabilized.

13. All conveyance channels, both temporary and permanent shall be stabilized to prevent erosion of the channel. Stabilization shall extend to areas at outlets and downstream reaches vulnerable to erosion resulting from flow discharging from the channel.

14. If BMP's shown are utilized but are insufficient to prevent sediment from reaching water bodies, adjacent properties, or public rights-of-way; additional BMP's shall be implemented immediately to prevent further encroachment of sediment.

15. Stabilized areas shall be provided for employee parking and storage of construction materials. Erodeable stockpiles of earthen materials, such as topsoil, silty and clayey soils; and landscape materials, shall be covered when not being incorporated in the work. Erosion control BMP's shall be utilized as necessary to prevent sediment laden runoff from leaving or sediment being transported from these areas from vehicle activity.

16. All pollutants other than sediment that occur during construction shall be handled and disposed of in a manner that does not cause contamination of storm water.

17. The Contractor shall keep an inspection log of the condition of the erosion control facilities. Erosion control facilities shall be inspected at least weekly and after each rainfall. The inspection log shall be kept at the project site at a designated location and shall be available for review by the County. An individual that has successfully completed the County's Erosion Control Certification course shall perform inspections and maintain the

18. All temporary BMP's shall be removed within 30 days after final site stabilization is achieved. Trapped sediment shall be deposited and stabilized on site. Areas disturbed resulting from removal shall be permanently stabilized.

19. Construction shall not be considered complete and acceptable until all disturbed soil surfaces have been protected from erosion with permanent landscaping, covering with impervious surfaces, restored to original undisturbed condition or permanently stabilized.

20. Vegetated stabilization and landscaping shall be fertilized, watered and maintained to insure that growth of vegetation is established and sustained.

21. During dry weather construction periods the contractor shall provide project-specific dust control measures that may include: Seeding, Mulching, Matting, Water, Tackifier, or Chemical Soil Stabilizers. The contractor shall maintain the dust control measures through dry weather periods until all disturbed areas have been stabilized. Immediately re-stabilize areas disturbed by contractor's operations or other activities (wind, water, vandalism, etc.).

NOTE:
SIGNIFICANT VARIATION AND DEGREE OF EROSION CONTROL EFFORT IS DICTATED BY WEATHER CONDITIONS. THE DEVELOPER AND CONTRACTOR SHOULD BE PREPARED TO PROVIDE EXTRA EROSION CONTROL PROVISIONS AND EFFORT DURING WINTER AND WET WEATHER CONDITIONS BEYOND THAT NORMALLY REQUIRED DURING SUMMER AND DRY WEATHER CONDITIONS. FINE GRAINED AND UNCONSOLIDATED SOILS ON SLOPING SITES MAY BECOME UNSTABLE WHEN SUBJECT TO EXCESSIVE MOISTURE.

Notes:
1. Asphalt construction entrance 6 in. asphalt treated base (ATB).
2. 3-inch trash pump with floats on the suction hose.
3. Midpoint spray nozzles, if needed.
4. 6-inch sewer pipe with butterfly valves. Bottom one is a drain. Locate top pipe's invert 1 foot above bottom of wheel wash.
5. 8 foot x 8 foot sump with 5 feet of catch. Build so can be cleaned with trackhoe.
6. Asphalt curb on the low road side to direct water back to pond.
7. 6-inch sleeve under road.
8. Ball valves.
9. 15 foot. ATB apron to protect ground from splashing water.

DESIGNED	TG
DRAWN	RK
CRP	24320
HOR.	NA
VERT.	NA
DATE	07/29/05
DWG:	EC2
SHEET 5	OF 10

CALL 48 HOURS BEFORE YOU DIG
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THOMAS D. GRANGE
STATE OF WASHINGTON
32068
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JANUARY 20, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 29TH AVENUE
EROSION CONTROL DETAILS

CLARK COUNTY
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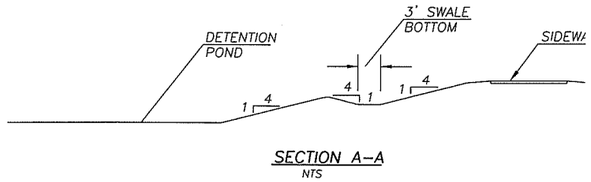
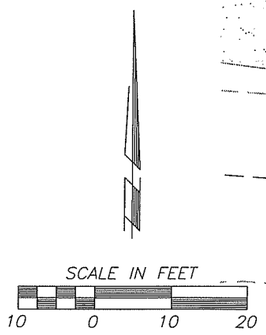
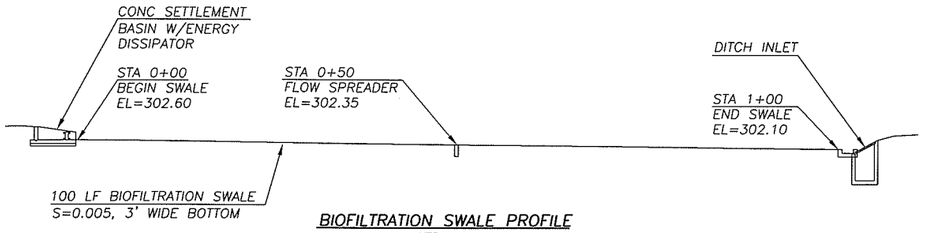
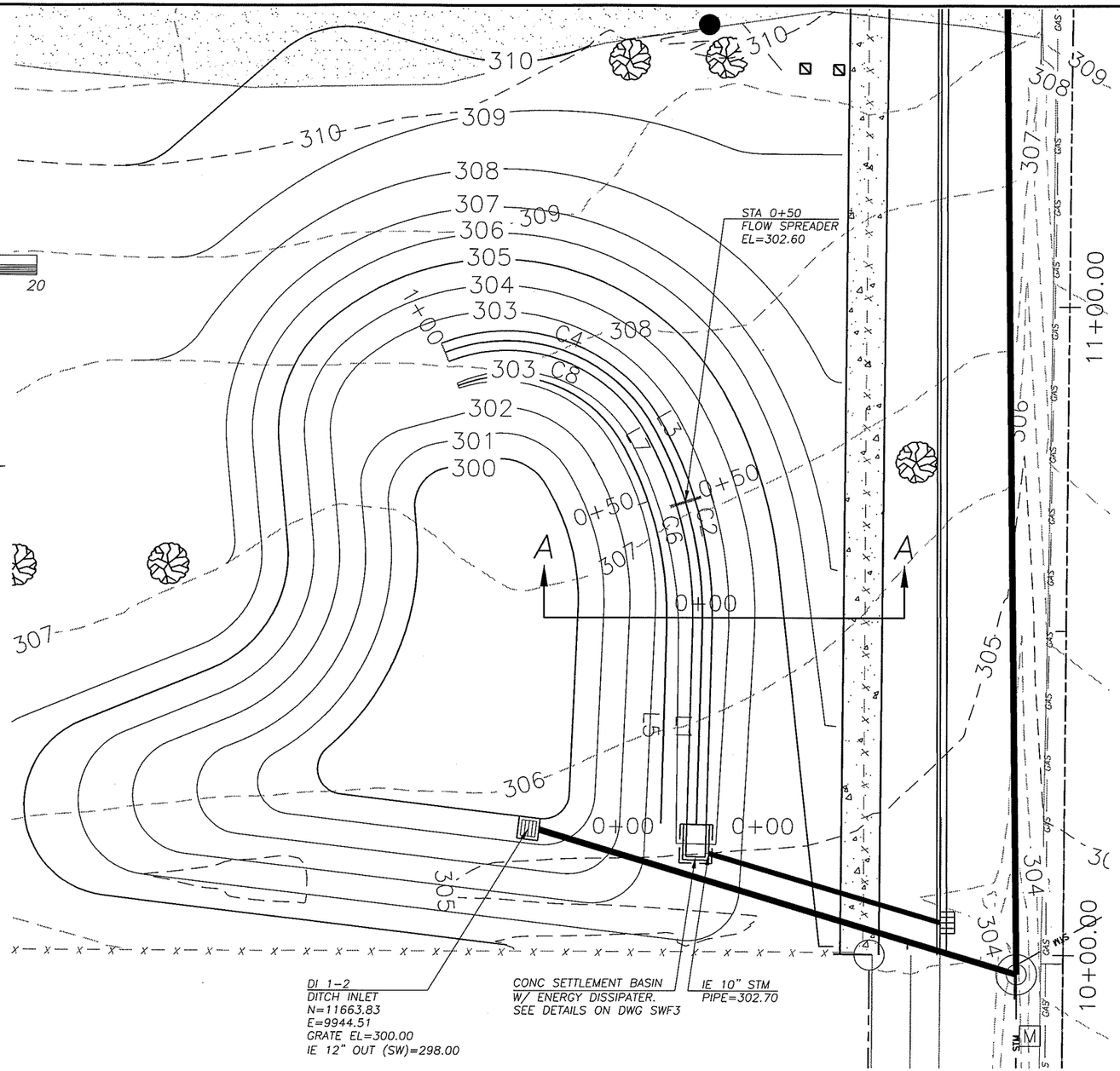


SECTION A–A
NTS





BIOFILTRATION SWALE PROFILE
NTS



SWALE ALIGNMENT

ITEM	L1			C2	L3			C4	
CONTROL POINT	BOP	PC	RADIUS	PI	PT	PC	RADIUS	PI	EOP
STATION	0+00	0+31	N/A	0+47	0+62	0+62	N/A	0+85	1+00
NORTHING	11664.48	11695.18	11696.68	11711.03	11724.95	11725.51	11713.06	11745.71	11737.23
EASTING	9970.52	9971.31	9912.33	9971.71	9964.11	9963.81	9940.98	9952.79	9931.40
DIRECTION	N 01°27'46" E				N 28°37'31" W				
DISTANCE	30.71				0.64				
DEFLECTION ANGLE				30°05'17"				83°00'23"	
DELTA ANGLE			30°05'17"				83°00'23"		
DEGREE OF CURVE – ARC			97°06'41"				220°22'06"		
DEGREE OF CURVE – CHORD			115°52'21"				220°22'06"		
CHORD DIRECTION			N13°34'52"W				N70°07'42"W		
TANGENT			15.86				23.01		
RADIUS			59.00				26.00		
ARC LENGTH			30.98				37.67		
CHORD LENGTH			30.63				34.46		
EXTERNAL			2.09				8.72		
MID ORDINATE			2.02				6.53		

BERM ALIGNMENT

ITEM	L5			C6	L7			C8	
CONTROL POINT	BOP	PC	RADIUS	PI	PT	PC	RADIUS	PI	EOP
STATION	0+00	0+31	N/A	0+45	0+59	0+59	N/A	0+78	0+89
NORTHING	11664.62	11695.32	11696.68	11709.69	11722.31	11722.88	11713.06	11738.80	11732.11
EASTING	9965.02	9965.81	9912.33	9966.18	9959.29	9958.98	9940.98	9950.29	9933.43
DIRECTION	N 01°27'46" E				N 28°37'31" W				
DISTANCE	30.71				0.64				
DEFLECTION ANGLE				30°05'17"				83°00'23"	
DELTA ANGLE			30°05'17"				83°00'23"		
DEGREE OF CURVE – ARC			107°05'42"				279°29'30"		
DEGREE OF CURVE – CHORD			138°19'14"				279°29'30"		
CHORD DIRECTION			N13°34'52"W				N70°07'42"W		
TANGENT			14.38				18.14		
RADIUS			53.50				20.50		
ARC LENGTH			28.09				29.70		
CHORD LENGTH			27.77				27.17		
EXTERNAL			1.90				6.87		
MID ORDINATE			1.83				5.15		

DESIGNED	TG
DRAWN	RK
CRP	24320
HOR.	1"=10'
VERT.	NA
DATE	07/29/05
DWG:	SWF1
SHEET 6	OF 10

CALL 48 HOURS BEFORE YOU DIG
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NORTHWEST UTILITIES NOTIFICATION CENTER

EXPIRES: JANUARY 20, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 29TH AVENUE
STORMWATER FACILITY

CLARK COUNTY
WASHINGTON
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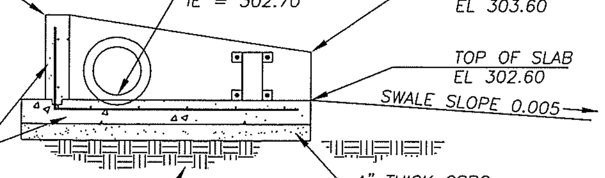
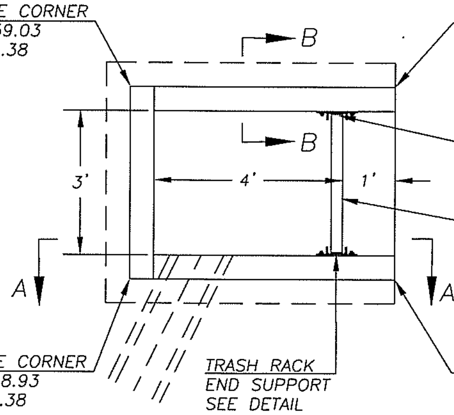
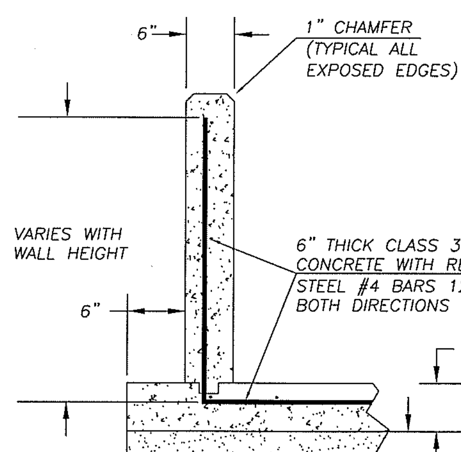


SECTION A

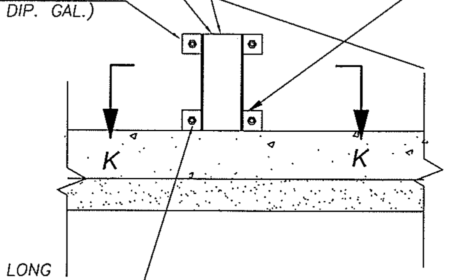


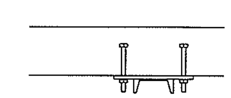
CONC SETTLEMENT BASIN
STORMWATER FACILITY



SECTION B

* SUBGRADE BELOW CSBC
COMPACTED TO 95% MIN.





SECTION K-K

TRASH RACK END SUPPORT

ENGINEERING PROGRAM
DESIGN SECTION

NE 29TH AVENUE
STORMWATER FACILITY DETAILS

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STATE OF WASHINGTON
32068
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JANUARY 20, 2006

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553-4344
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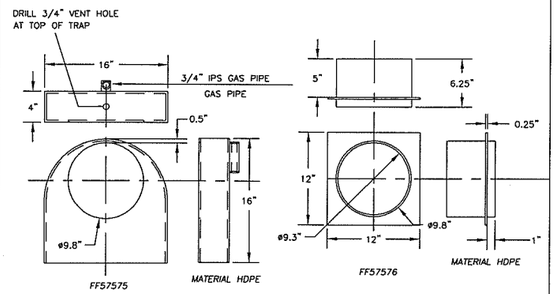
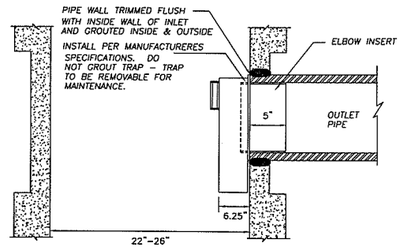
DESIGNED	TG
DRAWN	RK
CRP	24320
HOR.	NA
VERT.	NA
DATE	07/29/05
DWG:	SWF3
SHEET 7	OF 10



LOW PROFILE ELBOW
NTS

ELBOW INSERT
NTS

ZYMARK BRAND OR EQUIVALENT



DWG: D2-1.DWG

NO.	REVISIONS	DATE	BY

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CLARK COUNTY WASHINGTON
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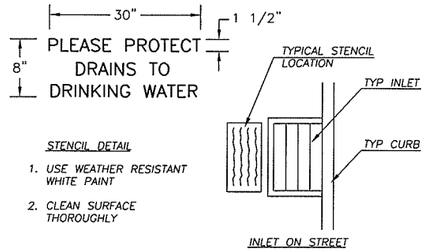
CATCH BASIN OUTLET PIPE TRAP

APPROVED
Peter Capell
COUNTY ENGINEER
01/01/04
DATE

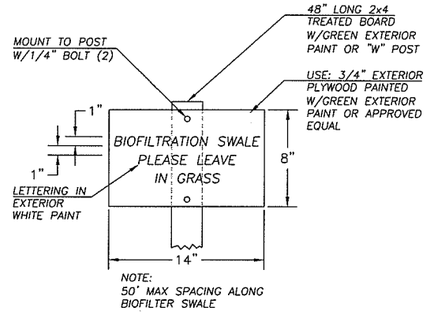
STANDARD D2.1
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 09/23/03



STENCIL DETAIL

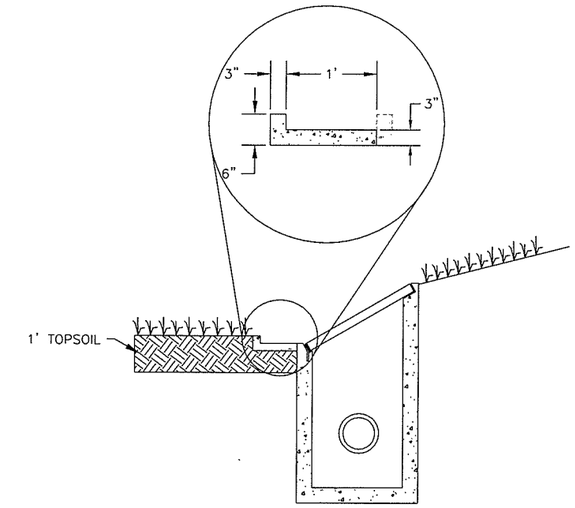
1. USE WEATHER RESISTANT WHITE PAINT
2. CLEAN SURFACE THOROUGHLY

INLET STENCIL DETAIL
NTS

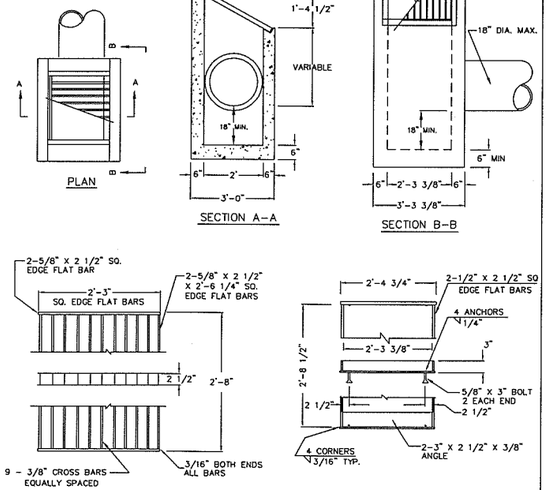


NOTE:
50' MAX SPACING ALONG BIOFILTER SWALE

BIOFILTRATION SWALE PROTECTION SIGN
NTS



CEMENT CONCRETE OUTLET TROUGH DETAIL
NTS



NOTES:
1. DITCH INLET CONSTRUCTION IN ACCORDANCE WITH ASTM C-478
2. CATCH BASIN, FRAME, AND GRATES SHALL BE FLAT BAR STEEL OR APPROVED EQUAL.
3. INSIDE FRAME DIMENSIONS: 2'-3 3/8"x 2'-8 1/2"".
4. 3/8" CROSS BARS SHALL BE FLUSH WITH THE GRATE SURFACE AND MAY BE FILLET WELDED. RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.

DWG: D6.DWG

NO.	REVISIONS	DATE	BY

Department of Public Works
CLARK COUNTY WASHINGTON
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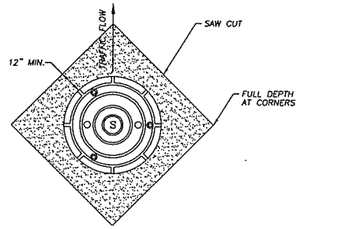
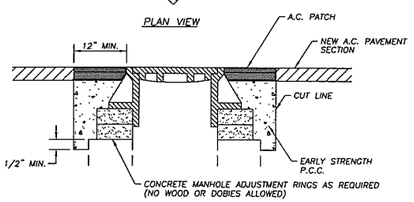
DITCH INLET

APPROVED
Peter Capell
COUNTY ENGINEER
01/01/04
DATE

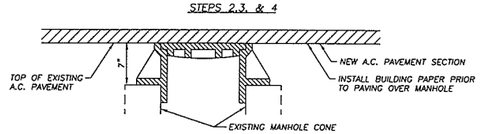
STANDARD D6
PLAN No.
DESIGNED SCH
DRAWN SCH
DATE 08/11/02



PLAN VIEW



STEPS 2, 3, & 4



STEP 1

STEP 1 COVER EXSITING MANHOLE WITH BUILDING PAPER AND CONSTRUCT A.C. PAVEMENT OVER TOP OF MANHOLE.
STEP 2 SAW CUT AND REMOVE PAVEMENT AROUND MANHOLE 12" MIN. FROM MANHOLE FRAME.
STEP 3 RAISE MANHOLE FRAME AND COVER USING CONCRETE RINGS AND MECHANICAL ADJUSTMENT DEVICES TO FINISH GRADE MATCHING PROFILE AND CROSS SLOPE.
STEP 4 BACKFILL WITH EARLY STRENGTH P.C.C. AND A.C. TO DEPTHS AS DIRECTED.

DWG: F27.DWG

NO.	REVISIONS	DATE	BY

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CLARK COUNTY WASHINGTON
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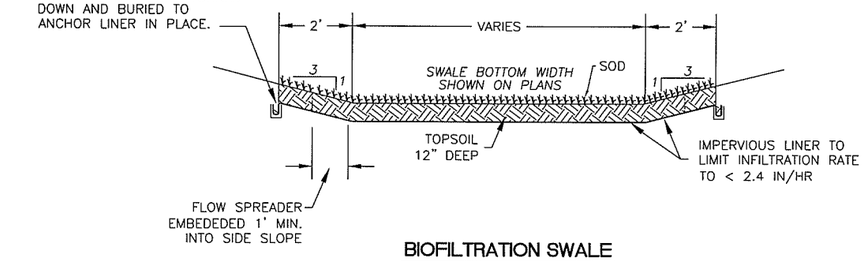
MANHOLE ADJUSTMENT DETAIL

APPROVED
Peter Capell
COUNTY ENGINEER
9/12/00
DATE

F27
DESIGNED SCH
DRAWN SCH
DATE 09/23/02

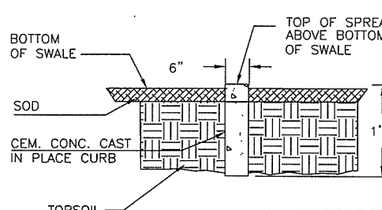


BIOFILTRATION SWALE
NTS

NOTES

1. TOP SOIL TO BE TYPE A. (INCL IN PAYMENT OF SWALE).
2. INSTALL SOD ON SWALE BOTTOM ALL DISTURBED AREAS. WITHIN THE SWALE.
3. SWALE VEGETATION TO BE WELL ESTABLISHED PRIOR TO PAVING.
4. SEED MIX FOR BIOFILTRATION SWALE

PERENNIAL RYEGRASS	20%
KENTUCKY BLUEGRASS	30%
TALL FESCUE, ALTA FESCUE	30%
RED FESCUE	20%



NOTES:
1. POUR SPREADER LEVEL AND WITH TOP ½" ABOVE SWALE BOTTOM TO PROVIDE UNIFORM DISTRIBUTION OF FLOW OVER THE TOP OF THE SPREADER.
2. EMBED SPREADER 1' INTO SIDESLOPES

FLOW SPREADER DETAIL

DESIGNED	TG
DRAWN	RK
CRP	24320
HOR.	NA
VERT.	NA
DATE	07/29/05
DWG:	D01
SHEET 8	OF 10

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THOMAS D. GRADE 32068 REGISTERED PROFESSIONAL ENGINEER STATE OF WASHINGTON
EXPIRES: JANUARY 20, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 29TH AVENUE
DRAINAGE DETAILS

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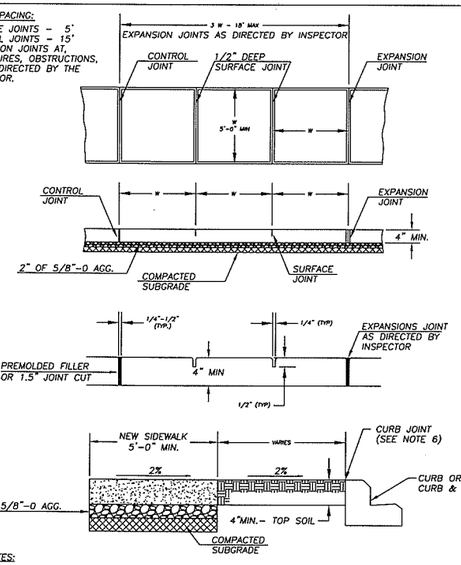
JOINT SPACING:
SURFACE JOINTS - 5'
CONTROL JOINTS - 15'
EXPANSION JOINTS AT STRUCTURES, OBSTRUCTIONS, OR AS DIRECTED BY THE INSPECTOR.



NOTES:

1. CONCRETE SHALL BE 3,000 PSI MIN. (CLASS 3000). 3 1/2" SLUMP (± 1")
2. FINISH SHALL BE MEDIUM BROOM PERPENDICULAR TO PEDESTRIAN TRAFFIC UNLESS OTHERWISE DIRECTED.
3. ALL EXISTING EDGES SHALL BE SAWCUT.
4. NO FILLER REQUIRED FOR SURFACE JOINTS.
5. ALL JOINTS AND EDGES SHALL BE FINISHED WITH 1/4" RADIUS EDGER (3" SMOOTH EACH SIDE)
6. FOR SIDEWALKS ADJACENT TO THE CURB AND POURED AT THE SAME TIME AS THE CURB, THE JOINT BETWEEN THEM SHALL BE A TROWELED JOINT WITH A MIN. 1/2" RADIUS.

NO.	REVISIONS	DATE	BY
1	CHANGE SUBGRADE &	03/28/02	KB
2	4" 2" (BASE AGG. & NOTES)	10/07/02	SCH

DWG: F12.dwg

Department of Public Works
CLARK COUNTY
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SIDEWALK DETAIL

STANDARD F12

APPROVED
Peter Capell
COUNTY ENGINEER
01/01/04
DATE

PLAN No.
DESIGNED GB
DRAWN KB
DATE 10/08/02

OPEN CUT UTILITY TRENCH BACKFILL DETAIL (COLLECTOR OR ARTERIAL)

SURFACING:

1. All A.C.P. shall be saw cut to provide a straight, clean edge prior to paving.
2. The cut line shall be one continuous straight line from the outer excavation limits of manhole, valve box, etc. to manhole, valve box, etc.
3. Pave with an 0.5 ft. minimum compacted depth A.C.P., or match existing or design section, whichever is greater.
4. Lifts for A.C.P. (Class A) shall be 0.15 ft. minimum and 0.35 ft. maximum for non-surface lifts (0.25' maximum for surface lift); the temperature shall be 250 degree minimum, 350 degree maximum, compacted to 92% of the theoretical maximum.
5. All joints shall be tacked, sealed and sanded.
6. Trench shall be plated until paved.
7. For longitudinal installation, full lane width including turn lanes restoration shall be required or as directed by Clark County. For transverse installation refer to surfacing restoration of detail U6. See Section 12.20A.120.C.

BASE COURSE:

1. 0.80 ft. minimum depth (1-1/4" minus) C.S.B.C. (W.S.D.O.T. approved material).
2. Compacted to 95% of maximum density. See trench zone.
3. Equivalent depth of A.T.B. may be substituted.
4. For transverse or diagonal trenches in existing roadway pavement, CDF will be used from the bottom of full pavement section to a maximum CDF section of 3 feet or to 6" above the top of the pipe, which ever is less. See note 13 of Std. Plan UGN of this Manual.

TRENCH ZONE:

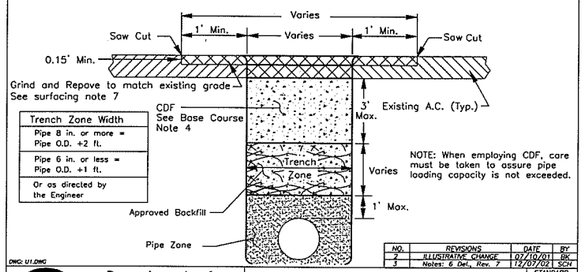
1. Granular backfill as approved by local agency or W.S.D.O.T. specifications for granular backfill. Compacted to 95% of maximum density in the trench zone using Method C compaction as per Section 2-03.3(14)C.
2. Native material may be used if approved prior to construction by Clark County.
3. Trench zone width -- see below.

PIPE ZONE:

1. Pipe zone material as specified by utility owner, and shall conform to section 9-03.12(3) WSDOT Specs.
2. 1.0 ft. max. from top of the pipe. 6" from top of pipe when CDF backfill used.

CONDITIONS:

1. A copy of the permit and requirements shall be on the job site at all times.
2. The permit holder shall be responsible for all restoration and maintenance of ditches, shoulders, driveways, landscaping, etc.
3. Call Clark County at 397-2446 twenty-four hours prior to commencing work.



NO.	REVISIONS	DATE	BY
2	ILLUSTRATIVE CHANGE	12/10/01	SK
3	Notes: 6 Del., Rev. 7	12/07/02	SCH

DWG: U1.DWG

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OPEN CUT UTILITY TRENCH BACKFILL DETAIL COLLECTOR OR ARTERIAL ROADWAY

STANDARD U1

APPROVED
Peter Capell
COUNTY ENGINEER
7/20/01
DATE

PLAN No.
DESIGNED
DRAWN
DATE 04/25/03

ROADWAY SHOULDER INCLUDES LAWN AND LANDSCAPE

SHOULDER ROCK:

1. 0.50 ft. minimum depth (1 1/4" minus) crushed rock. (Clark County Approved Material).
2. Compacted to 95% of maximum density. See trench zone.
3. Rock shall extend from E.O.P. to the back of trench at approx. .05 Ft./Ft. slope.

LAWN & LANDSCAPE AREAS:

1. A County approved top soil shall be placed 0.50 Ft. in depth.
2. Area to be restored to match existing.

TRENCH ZONE:

Where the distance from E.O.T. to E.O.P. is less than or equal to the depth of the trench; these conditions shall apply:

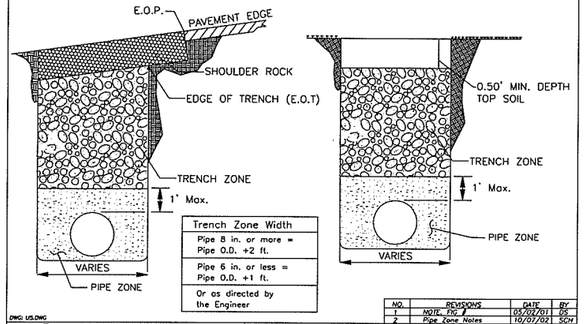
1. Granular backfill as approved by local agency or W.S.D.O.T. specifications for granular backfill. Compacted to 95% of maximum density in the trench zone using Method C compaction as per Section 2-03.3 (14)C.
2. Native material may be used if approved prior to construction.
3. Trench zone width -- see below.
4. Shoulder rock or landscaped sections as applicable.

PIPE ZONE:

1. Pipe zone material as specified by utility owner, and shall conform to section 9-03.12(3) WSDOT Specs.
2. 1.0 ft. max. from top of the pipe.

CONDITIONS:

1. A copy of the permit and requirements shall be on the job site at all times.
2. The permit holder shall be responsible for all restoration and maintence of ditches, shoulders, driveways, landscaping, ecl.
3. Call Clark County at 397-2446 twenty-four hours prior to commencing work.



NO.	REVISIONS	DATE	BY
1	NOTE: Eng.	05/07/01	DS
2	Pipe Zone Notes	10/07/02	SCH

DWG: U5.DWG

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ROADWAY SHOULDER INCLUDES LAWN & LANDSCAPE

STANDARD U5

APPROVED
Peter Capell
COUNTY ENGINEER
5/4/01
DATE

PLAN No.
DESIGNED
DRAWN
DATE 04/25/03

DESIGNED TG
DRAWN KB
CRP 24320
HOR. NA
VERT. NA
DATE 07/29/05
DWG: RD1
SHEET 9 OF 10

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STATE OF WASHINGTON
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EXPIRES: JANUARY 20, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 29TH AVENUE
ROADWAY DETAILS

proud past, promising future
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WASHINGTON

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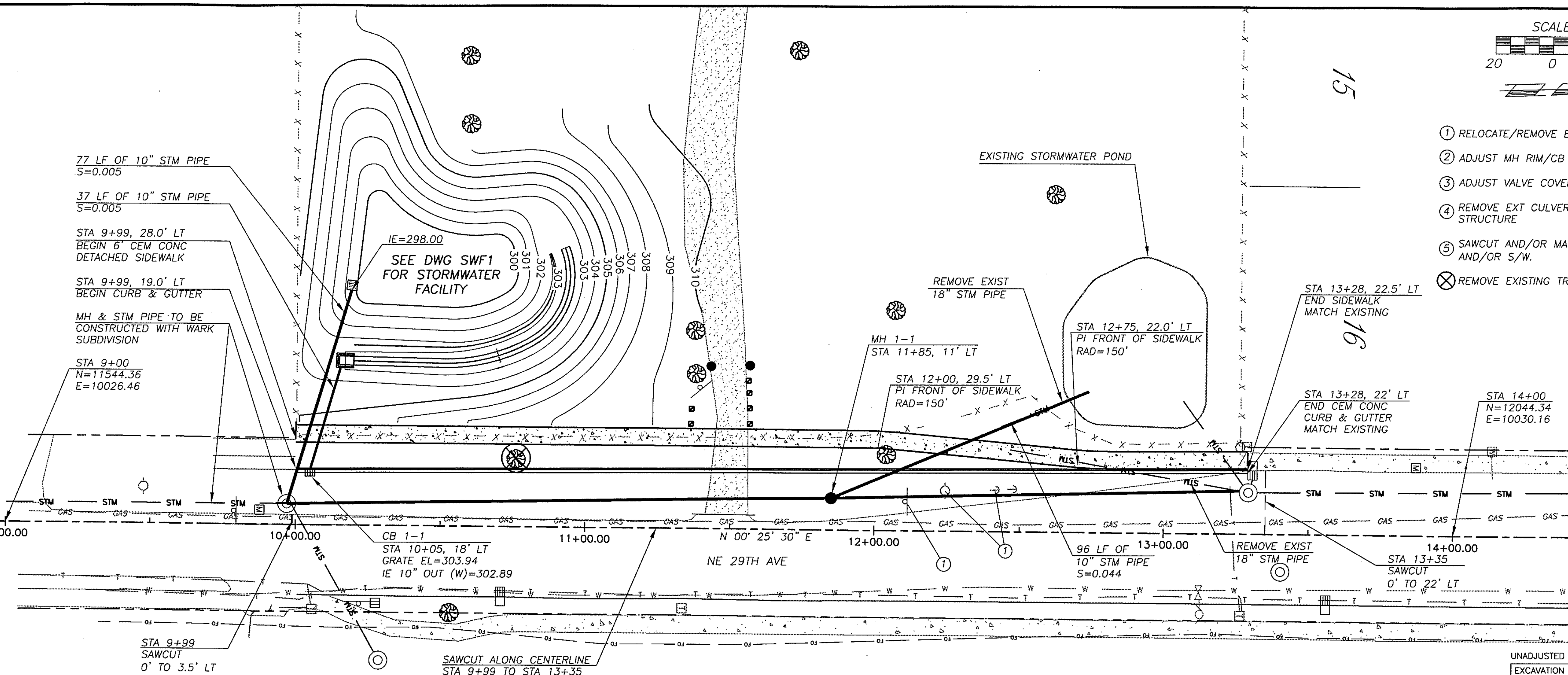
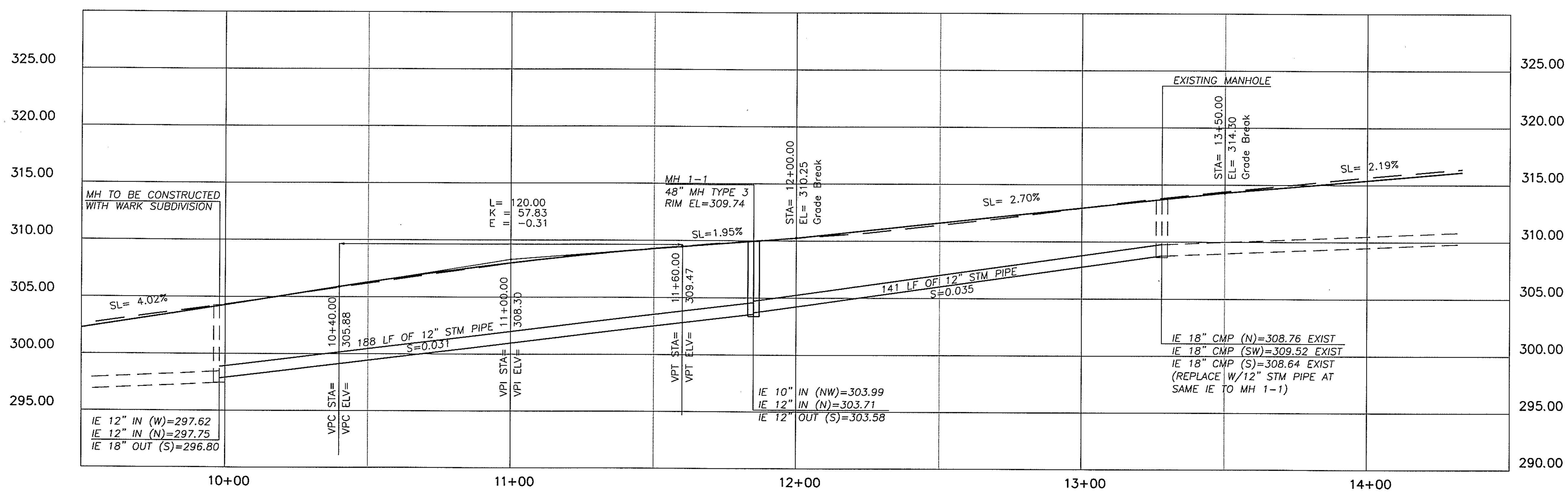


1. RELOCATE/REMOVE BY OTHERS
2. ADJUST MH RIM/CB GRATE TO FG
3. ADJUST VALVE COVER/METER BOX TO FG
4. REMOVE EXT CULVERT/DRAINAGE STRUCTURE
5. SAWCUT AND/OR MATCH EXT CURB AND/OR S/W.

⊗ REMOVE EXISTING TREE

UNADJUSTED EARTHWORK QUANTITIES

EXCAVATION	406 C.Y.
EMBANKMENT	73 C.Y.



DESIGNED	TG
DRAWN	RK
CRP	24320
HOR.	1"=20'
VERT.	1"=5'
DATE	07/29/05
DWG:	PP1
SHEET 10	OF 10

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STATE OF WASHINGTON
32068
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: JANUARY 20, 2006

ENGINEERING PROGRAM
DESIGN SECTION

NE 29TH AVENUE
PLAN & PROFILE

CLARK COUNTY
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